Kramer Electronics, Ltd.

USER MANUAL

Model:

VP-471

3G HD-SDI to DVI Scaler

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1 Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative and affordable solutions to the vast range of problems that confront the video, audio, presentation and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 1,000-plus different models now appear in 11 groups[1] that are clearly defined by function.

Thank you for purchasing your Kramer **MegaTOOLS® VP-471** *3G HD-SDI to DVI Scaler* which is ideal for:

- Projection systems in conference rooms, boardrooms, hotels and churches
- Home theater up-scaling

The package includes the following items:

- **VP-471** *3G HD-SDI to DVI Scaler*
- Power adapter (5V DC output)
- This user manual[2]

2 Getting Started

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual
- Use Kramer high-performance high-resolution cables[3]

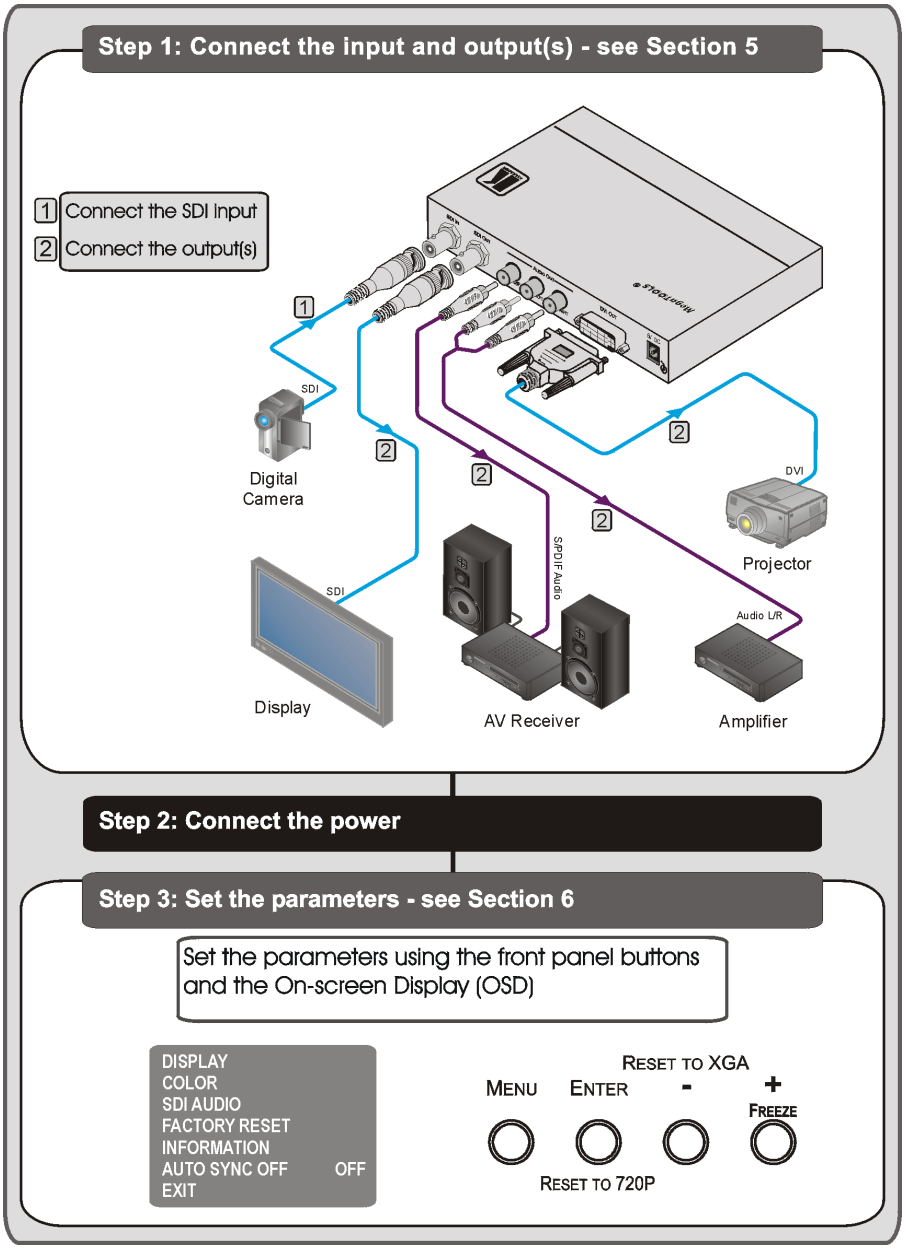
1 GROUP 1: Distribution Amplifiers; GROUP 2: Switchers and Matrix Switchers; GROUP 3: Control Systems; GROUP 4: Format/Standards Converters; GROUP 5: Range Extenders and Repeaters; GROUP 6: Specialty AV Products; GROUP 7: Scan Converters and Scalers; GROUP 8: Cables and Connectors; GROUP 9: Room Connectivity; GROUP 10: Accessories and Rack Adapters; GROUP 11: Sierra Products

2 Download up-to-date Kramer user manuals from http://www.kramerelectronics.com

3 The complete list of Kramer cables is available at http://www.kramerelectronics.com

2.1 Quick Start

This quick start chart summarizes the basic setup and operation steps.



3 Overview

The Kramer **VP-471** *3G HD-SDI to DVI Scaler* is a high-performance digital scaler for signals up to 3G HD-SDI. It up and down-scales SDI, HD-SDI and 3G HD-SDI signals to resolutions up to WUXGA and 1080p. The following output resolutions are supported:

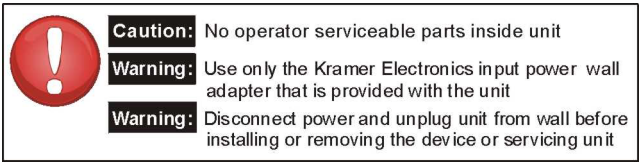
- PC: SVGA, XGA, 1360x768, WXGA, SXGA, 1440x900, SXGA+, WSXGA+, UXGA, WUXGA, 720x576 @50, 720x480 (NTSC), 1280x720 @50/60 (HD 720), 1920x1080 @50/60 (HD 1080)
- SDTV: 480p and 576p
- HDTV: 720p @50/60Hz, 1080i @50/60Hz and 1080p @50/60Hz

The **VP-471** also features:

- A maximum data rate of 3Gbps
- Multi-standard operation: SDI (SMPTE 259M), HD-SDI (SMPTE 292M) and 3G HD-SDI (SMPTE 424M)
- An OSD (On-screen Display) accessible via the front panel buttons for easy setup and adjustment
- A built-in ProcAmp for convenient signal adjustment
- A non-volatile memory that retains the last settings used
- A freeze button
- SDI input and loop output (up to 3G HD-SDI)
- A DVI video output
- S/PDIF digital and unbalanced stereo audio outputs
- An external 5V DC source, making it suitable for field operation
- Operation directly via the front panel push buttons and the OSD

To achieve the best performance:

- Use only good quality connection cables[1] to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables)
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality and position your Kramer **VP-471** away from moisture, excessive sunlight and dust


Caution: No operator serviceable parts inside unit
Warning: Use only the Kramer Electronics input power wall adapter that is provided with the unit
Warning: Disconnect power and unplug unit from wall before installing or removing the device or servicing unit

1 Available from Kramer Electronics at http://www.kramerelectronics.com

4 Defining the VP-471 3G HD-SDI to DVI Scaler

Figure 1 and Table 1 define the front panel of the **VP-471**.

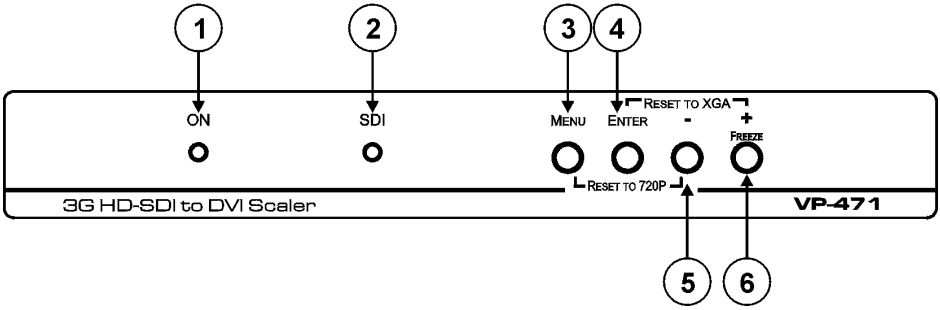


Figure 1: VP-471 3G HD-SDI to DVI Scaler Front Panel

Table 1: VP-471 3G HD-SDI to DVI Scaler Front Panel Features

#	Feature	Function
1	*ON* LED	Lights green when the unit is powered on
2	*SDI* LED	Lights blue when an SDI signal is detected on the input
3	*MENU* Button	Press to display the OSD (On-screen Display) menu. When the OSD is not displayed, press together with the – button to set the output resolution to 720p (1280x720)
4	*ENTER* Button	In the OSD, press to select the highlighted menu item. When the OSD is not displayed, press together with the + button to set the output resolution to XGA
5	– Button	In the OSD, press to step up through the options or to decrement the parameter value
6	+ / *FREEZE* Button	In the OSD, press to step down forward through the options or to increment the parameter value. When the OSD is not displayed, press to freeze the display

Figure 1 and Table 1 define the rear panel of the **VP-471**.

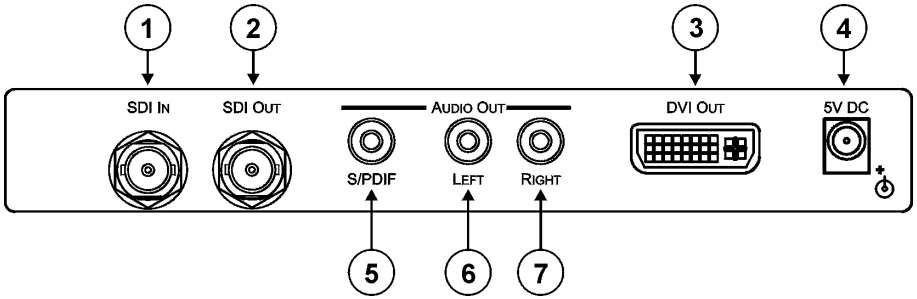


Figure 2: VP-471 3G HD-SDI to DVI Scaler Rear Panel

Table 2: VP-471 3G HD-SDI to DVI Scaler Rear Panel Features

#	Feature		Function
1	*SDI IN* BNC Connector		Connect to the SDI source
2	*SDI OUT* BNC Connector		Connect to the SDI acceptor. The signal is re-clocked and equalized
3	*DVI OUT* Connector		Connect to the DVI acceptor
4	*5V DC*		Connect to the +5V DC power adapter, center pin positive
5	*AUDIO OUT* Audio Output Connectors	*S/PDIF* OUT RCA Connector	Connect to a digital audio acceptor (S/PDIF)
6		*LEFT* Channel Unbalanced Stereo Audio RCA Connector	Connect to the left channel of the unbalanced stereo audio acceptor
7		RIGHT Channel Unbalanced Stereo Audio RCA Connector	Connect to the right channel of the unbalanced stereo audio acceptor

5 Connecting the VP-471 3G HD-SDI to DVI Scaler

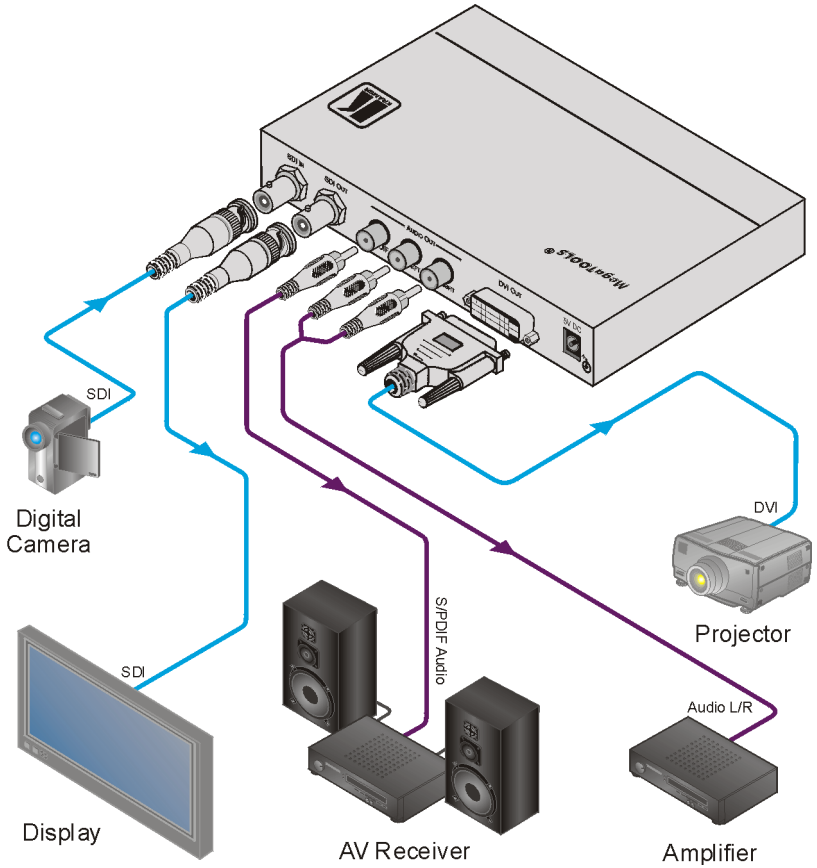


Figure 3: Connecting the VP-471 3G HD-SDI to DVI Scaler

To connect the VP-471, as illustrated in the example in Figure 3:

1. Connect the digital SDI camera to the SDI IN BNC connector.
2. Connect the SDI OUT BNC connector to the SDI display.
3. Connect the S/PDIF AUDIO OUT RCA connector to the digital AV receiver.
4. Connect the LEFT and RIGHT AUDIO OUT RCA connectors to the unbalanced stereo audio amplifier.
5. Connect the DVI OUT connector to the DVI projector.
6. Connect the 5V DC power adapter to 5V DC power socket and to the mains electricity (not shown in the illustration).

6 Operating the VP-471 3G HD-SDI to DVI Scaler

The **VP-471** is operated directly via the front panel buttons and via the OSD menu (see Section 6.2).

6.1 Using the Front Panel Buttons

During normal operation (without the OSD), the front panel buttons perform in the following manner:

- **MENU**: Displays the OSD Main Menu (see Section 6.2). Press a second time to close the OSD
- **FREEZE**: Freezes the display. Press a second time to unfreeze the display
- **MENU** and **AUTO ADJUST**: Press together to set the output to 720p (1280x720)
- **ENTER** and **FREEZE**: Press together to set the output to XGA (1024x768)

6.2 Using the OSD

The OSD is used to set a variety of parameters.

When using the OSD, the front panel buttons operate in the following manner:

- **MENU**: Opens the OSD main menu (see Table 3). Press a second time to close the OSD
- **ENTER**: Selects the highlighted menu item or parameter
- – : Steps up through the menu list or decrements the parameter value
- + : Steps down through the menu list or increments the parameter value

Note: After a period of 15 sec with no button activity, the OSD menu times-out automatically.

Example of Setting a Parameter

To set the green offset value of the display output to 42:

1. From normal operation, press MENU.
   The OSD main menu appears on the screen.

2. Press the + or – button to highlight COLOR.
   COLOR changes to green.
3. Press ENTER.
   The Display submenu is displayed.
4. Press the + or – button to highlight G OFFSET.
   G OFFSET changes to green.
5. Press ENTER.
   The G OFFSET parameter changes to red.
6. Press the + button to increase the value to 42.
7. Press ENTER to set the value.
   G OFFSET is highlighted in green.
8. To exit normal operation, press MENU.

6.2.1 The Main Menu

Table 3 defines the Main menu parameters and functions.

Table 3: The Main Menu Parameters and Functions

Parameter	Function
DISPLAY	Sets the output resolution, size and aspect ratio (see Table 4)
COLOR	Sets the output color parameters (see Table 5)
SDI AUDIO	Selects which embedded audio to output: Group 1, Group 2, Group 3, Group 4, Auto[1], Off[2] Default: Auto
FACTORY RESET	Resets all parameters to factory defaults
INFORMATION	Displays current input resolution, output resolution and firmware revision
AUTO SYNC OFF	When on, this de-activates the output after a few minutes if no input is present[3]
EXIT	Exits the Main menu

6.2.2 The Display Submenu

The Display submenu sets the display output resolution, size and aspect ratio.

Table 4 defines the display output parameters.

1 When set to Auto, the unit searches for the lowest Group number which has audio and selects this audio Group

2 Audio is not outputted

3 Useful, for example, when the output is connected to a projector, and the projector will automatically shut down when it has no input

Table 4: The Display Submenu Parameters

Parameter	Parameters	Factory Default
OUTPUT	Sets the output resolution. Native, 1920x1080p @50 (HD 1080), 1280x720p @50 (HD 720), 720x576p @50, 1920x1080p (HD 1080), 1280x720p (HD 720), 720x480p (NTSC), 1920x1200p (WUXGA), 1600x1200 (UXGA), 1680x1050 (WSXGA+), 1400x1050 (SXGA+), 1440x900, 1280x1024 (SXGA), 1280x800 (WXGA), 1360x768, 1280x768 (WXGA), 1024x768 (XGA), 800x600 (SVGA) PC: VGA, SVGA, XGA, 1280x800, UXGA, SXGA, WXGA, SXGA+, WXGA+, WSXGA, WUXGA SDTV: 480p and 576p HDTV: 720p @50/60Hz, 1080i @50/60Hz, 1080p @50/60Hz	1024x768 @60
SIZE	Sets the output size/aspect ratio: Full, Pan scan, Letter box, Under 2, Under 1, Over scan	Full
EXIT	Exits the Display menu	

6.2.3 The Color Submenu

The Color submenu sets the display output color parameters. Table 5 defines the color output parameters.

Table 5: The Color Submenu Parameters

Parameter	Function	Value Range	Factory Default
CONTRAST	Sets the output contrast	0-255	105
BRIGHTNESS	Sets the output brightness	0-192	96
R	Sets the output red value	0-255	128
G	Sets the output green value	0-255	128
B	Sets the output blue value	0-255	128
R OFFSET	Sets the output red signal level offset	0-63	32
G OFFSET	Sets the output green signal level offset	0-63	32
B OFFSET	Sets the output blue signal level offset	0-63	32
EXIT	Exits the Color submenu		

7 Technical Specifications

Table 6 lists the technical specifications of the **VP-471** *3G HD-SDI to DVI Scaler*.

Table 6: Technical Specifications[1] of the VP-471 3G HD-SDI to DVI Scaler

INPUT:	1 SDI/HD-SDI/3G HD-SDI on a BNC connector	
OUTPUTS:	VIDEO:	1 SDI/HD-SDI/3G HD-SDI on a BNC connector (loop)
		1 DVI on DVI connector
	AUDIO:	1 S/PDIF digital audio on an RCA connector
		1 Unbalanced stereo audio on 2 RCA connectors
INPUT RESOLUTIONS:	480i @59.94Hz, 576i @50Hz, 720p @50/60Hz, 1080p @24/25/30/50/60Hz, 1080i @50/60Hz	
OUTPUT RESOLUTIONS[2]:	Native, 1920x1080p @50 (HD 1080), 1280x720p @50 (HD 720), 720x576p @50, 1920x1080p (HD 1080), 1280x720p (HD 720), 720x480p (NTSC), 1920x1200p (WUXGA), 1600x1200 (UXGA), 1680x1050 (WSXGA+), 1400x1050 (SXGA+), 1440x900, 1280x1024 (SXGA), 1280x800 (WXGA), 1360x768, 1280x768 (WXGA), 1024x768 (XGA), 800x600 (SVGA) PC: VGA, SVGA, XGA, 1280x800, UXGA, SXGA, WXGA, SXGA+, WXGA+, WSXGA, WUXGA SDTV: 480p @60Hz and 576p @50Hz HDTV: 720p @50/60Hz, 1080i @50/60Hz, 1080p @50/60Hz	
OUTPUT REFRESH RATE:	60Hz for computer graphics resolutions, 50/60Hz for HDTV resolutions	
OUTPUT SIZE	Full, Pan scan, Letter box, Under 2, Under 1, Over scan	
PROCESSING DELAY:	30ms	
CONTROLS:	Menu, OSD and Freeze front panel buttons	
POWER SOURCE:	5V DC, 1.35A	
DIMENSIONS:	18.8cm x 11.4cm x 2.4cm (7.4" x 4.5" x 1") W, D, H	
WEIGHT:	0.75kg (1.7lbs) approx.	
ACCESSORIES:	Power supply	
OPTIONS:	RK-2TB 19" rack adapter	

1 Specifications are subject to change without notice

2 All resolutions are outputted @60Hz, except where noted

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for three years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed, or on which the WARRANTY VOID IF TAMPERED sticker has been torn, reattached, removed or otherwise interfered with.
3. Damage, deterioration or malfunction resulting from:
   i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   ii) Product modification, or failure to follow instructions supplied with the product
   iii) Repair or attempted repair by anyone not authorized by Kramer
   iv) Any shipment of the product (claims must be presented to the carrier)
   v) Removal or installation of the product
   vi) Any other cause, which does not relate to a product defect
   vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.

NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC* Rules and Regulations: Part 15: "Radio frequency devices Subpart B Unintentional radiators"

CAUTION!

- Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- Use the supplied DC power supply to feed power to the machine.
- Please use recommended interconnection cables to connect the machine to other components.

* FCC and CE approved using STP cable (for twisted pair products)

For the latest information on our products and a list of Kramer distributors visit www.kramerelectronics.com **where updates to this user manual may be found. We welcome your questions, comments and feedback.**

Caution

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

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P/N: 2900-000639 REV 3